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A NEW SPECIES AND A NEW RECORD OF THE ANT GENUS *OOCERAEA* ROGER, 1862 (HYMENOPTERA: FORMICIDAE: DORYLINAЕ) FROM THAILAND

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Summary. Currently, 16 species of the genus *Ooceraea* Roger, 1862 are known from the Oriental, Australian and Oceanian realms, but no identified species have ever been recorded from Thailand. Here *Ooceraea siamensis* **sp. n.** is described from Thailand based on the worker and dealate queen. The new species is most similar to *O. biroi* (Forel, 1907), a species widely distributed across tropical and subtropical regions of the world, but can be distinguished from the latter by postpetiole slightly longer than broad in dorsal view (clearly shorter than broad in *O. biroi*), by foveae on first gastral tergite and sternite denser and coarser (weak in *O. biroi*), and by smaller size (head width in new species 0.33–0.38 mm while in *O. biroi* 0.46–0.49 mm). The type series of the new species was collected from a colony in soil and partly in a coconut seed. *Ooceraea duadridentata* Yamada, Luong et Eguchi, 2018 is recorded from Thailand for the first time.

Key words: ants, Hymenoptera, Formicidae, Dorylinae, taxonomy, new species, fauna, new record, South-East Asia.

В. Ятронг, Ск. Ямане, Д. Виватвитая. Новый вид и новое указание муравьев рода *Ooceraea* Roger, 1862 (Hymenoptera: Formicidae, Dorylinae) из Таиланда // Дальневосточный энтомолог. 2021. N 441. С. 1-10.

Резюме. В настоящее время 16 видов рода *Ooceraea* Roger, 1862 известны из Ориентальной и Австралийской областей и Океании, но из Таиланда достоверно не было отмечено ни одного вида. В настоящей статье по рабочим и бескрылой самке из Таиланда описан новый для науки вид *Ooceraea siamensis* sp. n. Этот вид близок к широко распространенному в тропиках и субтропиках *O. biroi* (Forel, 1907), но отличается от него удлиненным постпетиолусом, крупными частыми ямками на первом сегменте брюшка и меньшими размерами. Типовая серия нового вида была собрана из колонии, находящейся в почве и частично в кокосовом орехе. Впервые для Таиланда приводится *Ooceraea duadridentata* Yamada, Luong et Eguchi, 2018.

INTRODUCTION

The ant genus *Ooceraea* Roger, 1862 belongs to the subfamily Dorylinae with *Ooceraea fragosa* Roger, 1862 as the type species (Borowiec, 2016; Antweb, 2021). The genus is characterized by a combination of the following characteristics: propodeal spiracle positioned low on the sclerite, pygidium armed with modified setae, antenna with 9 or 11 segments including scape, pronotomesopleural suture developed, 2-segmented waist with abdominal segment III (postpetiole) strongly tubulated, and no constrictions between abdominal segments IV, V, and VI. The abdominal segment IV is conspicuously the largest and its tergite does not fold over the sternite anteriorly. Eye is very small or completely absent in the worker caste (Borowiec, 2016). Members of the genus are distributed in the Oriental, Australian and Oceanian realms (Yamada *et al.*, 2018; Antweb, 2021). Currently, 16 species are recognized in the genus. Among them eight species have been recorded from the Oriental realm, of which only two species (*O. biroi* and *O. duadridentata* Yamada, Luong et Eguchi, 2018) are listed in Southeast Asia. *Ooceraea biroi* (Forel, 1907) is widely distributed across tropical and subtropical regions of the world (Borowiec, 2016; Yamada *et al.*, 2018; Bharti *et al.*, 2021). So far, no identified species of the genus have been recorded from Thailand.

Recently, we have examined *Ooceraea* specimens deposited in the ant collection at the Natural History Museum of the National Science Museum, Thailand. We found an unidentified species that is closely related to *O. biroi*. In the present paper we describe this species based on the worker and dealate queen. *Ooceraea duadridentata* is also recorded for the first time from Thailand.

MATERIAL AND METHODS

We examined specimens deposited in the Natural History Museum of the National Science Museum, Thailand (THNHM). The holotype and paratypes of *Ooceraea siamensis* sp. n. were pin-mounted and compared with the high-resolution images of

the types of the closely related species (*Ooceraea biroii*): lectotype, Singapore, CASENT0916710; paralectotype, Singapore, CASENT0907059), which are available on Antweb (2021). Two paratype workers of *Ooceraea quadridentata* were also examined. Most morphological observations were made with a ZEISS Discovery.V12 stereoscope. Multi-focused montage images were produced using NIS element 3.7 from a series of source images taken by a Nikon MNB42100 digital camera attached to a Nikon ECLIPSE E600 microscope.

The morphological terminology follows Borowiec (2016). The following parts of bodies were measured using a micrometer attached to a ZEISS Discovery.V12 stereoscope. All measurements are expressed in millimeters to the nearest 0.01 mm.

The abbreviations used for the measurements and indices are as follows: **HL** – Head length, maximum length of cranium in full-face view, measured from transverse line spanning the anteriormost points of clypeus to that of posteriormost points of cranium; **HW** – Head width, maximum width of cranium in full-face view (excluding eyes); **SL** – Scape length: maximum length of antennal scape excluding basal condylar bulb; **MW** – Mesosomal width, maximum width of promesonotum in dorsal view; **ML** – Mesosomal length, maximum diagonal length of mesosoma in lateral view, measured from posterodorsal border of pronotal flange to posterior basal angle of metapleuron; **PL** – Petiolar length, maximum length of petiole in lateral view (excluding helcium); **PH** – Petiolar height, maximum height of petiole in lateral view (including subpetiolar process); **PW** – Petiolar width, maximum width of petiole in dorsal view; **PPL** – Postpetiolar length, maximum length of postpetiole in lateral view (excluding helcium); **PPH** – Postpetiolar height, maximum height of postpetiole in lateral view; **PPW** – Postpetiolar width, maximum width of postpetiole in dorsal view; **CI** – Cephalic index, $HW/HL \times 100$; **SI** – Scape index, $SL/HW \times 100$; **PI1** – Petiolar index 1, $PL/PH \times 100$; **PI2** – Petiolar index 2, $PW/PL \times 100$; **PPI1** – Postpetiolar index 1, $PPL/PPH \times 100$; **PPI2** – Postpetiolar index 2, $PPW/PPL \times 100$; **WI** – Waist index, $PPW/PW \times 100$.

The abbreviations used for the type and non-type depositories are as follows: **AKYC** – Ant collection of Aiki Yamada, Japan; **ACEG** – Ant Collection of Katsuyuki Eguchi in Department of Biological Sciences, Graduate School of Science, Tokyo Metropolitan University, Japan; **MCZC** – Museum of Comparative Zoology, Cambridge, Massachusetts, USA; **MHNG** – Muséum d'Histoire Naturelle, Geneva, Switzerland; **SKYC** – Seiki Yamane Collection at Kitakyushu Museum of Natural History and Human History, Japan; **THNHM** – Natural History Museum of the National Science Museum, Thailand.

NEW RECORD

Ooceraea quadridentata Yamada, Luong et Eguchi, 2018

Figs 1, 2

Ooceraea quadridentata Yamada, Luong et Eguchi, 2018: 18, figs. 1–11. Holotype and 11 paratype workers (two paratypes were examined), Dak Lak Province, Nam Kar Nature Reserve, 12.277°N, 108.094°E, ca. 545 m alt., 11.X 2017, A. Yamada leg., colony no. AKY11x17-114 (AKYC, ACEG, IEBR, MCZC, MHNG).

MATERIALS EXAMINED. **Vietnam:** Khanh Hoa, Hon Ba National Park, (900 m alt.), 12°06'N, 108°58'E, 20 II.2014, S. Hosoishi leg., SH14-Vie-16 (THNHM-I-25731, THNHM). **Northeastern Thailand:** Nakhon Ratchasima Prov., Wang Nam Kheao Dist., Udom Sab Subdist., 14°28'5"N, 101°54'15"E, 22.VI 2018, W. Jaitrong leg. WJT220618-1 (9 ergatoid queens (THNHM-I-25732 to THNHM-I-25740), 14 workers (THNHM-I-25741 to THNHM-I-25754), THNHM). **Eastern Thailand:** Chachoengsao Prov., Khao Ang Reu Nei W.S., Lumchangwat Station, 26.IV 2003, W. Jaitrong leg., WJT03-TH-229 (7 workers, THNHM-I-25755 to THNHM-I-25761, THNHM).

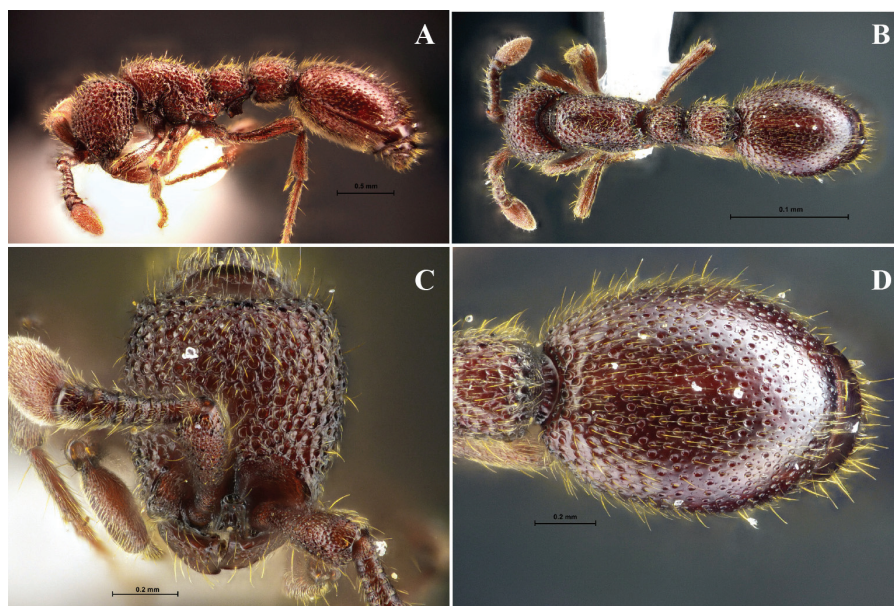


Fig. 1. *Ooceraea quadridentata*, non-type worker (THNHM-I-25754). A – body, lateral view; B – body, dorsal view; C – head in full-face view; D – postpetiole and abdominal tergite IV, dorsal view.

MEASUREMENTS AND INDICES. Worker (n = 10): HL 0.76–0.83, HW 0.66–0.73, SL 0.33–0.36, MW 0.46–0.53, ML 0.83–0.99, PL 0.33–0.36, PH 0.40–0.43, PW 0.30–0.36, PPL 0.36–0.40, PPH 0.36–0.46, PPW 0.33–0.43, CI 87–91, SI 45–55, PI1 77–85, PI2 90–110, PPI1 79–100, PPI2 91–109, WI 109–120. Ergatoid queen (n = 5): HL 0.86–0.89, HW 0.76–0.79, SL 0.36–0.40, EL 0.10, MW 0.59–0.63, ML 1.02–1.06, PL 0.36, PH 0.50, PW 0.40–0.43, PPL 0.43, PPH 0.46–0.50, PPW 0.43–0.46, CI 88–89, SI 48–50, EI 13, PI1 73, PI2 109–118, PPI1 89–93, PPI2 100–108, WI 108.

DIAGNOSIS. Worker (Fig. 1). Body rather large with head width 0.66–0.73 mm, dark reddish brown; antennna 11-segmented; propodeal declivity deeply concave, margined with conspicuous lateral ridges, each of which armed with two inconspicuous

denticles; dorsal and lateral faces of head deeply foveolate-reticulate, foveae relatively large; dorsal and lateral faces of mesosoma foveolate; foveae somewhat shallower and more sparsely distributed than those of head; propodeal declivity smooth; abdominal tergite and sternite IV densely foveolate; foveae somewhat smaller than those of head.

DESCRIPTION. Ergatoid queen (Fig. 2). *Size and color.* Relatively large (HW 0.66–0.73 mm; ML 0.83–0.99 mm). Body entirely dark reddish brown; hairs golden brown.

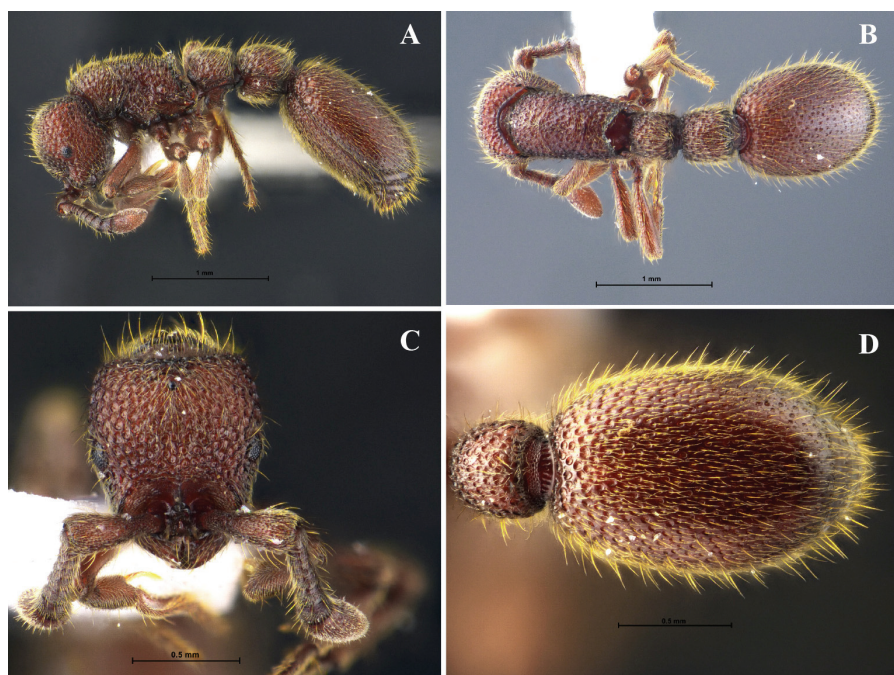


Fig. 2. *Ooceraea quadridentata*, non-type ergatoid queen (THNHM-I-25732). A – body, lateral view; B – body, dorsal view; C – head in full-face view; D – postpetiole and abdominal tergite IV, dorsal view.

Structure. Head in full-face view subrectangular, slightly longer than broad; lateral margin convex; posterior margin weakly concave. Antenna 11-segmented with enlarged apical segment (XI) which is almost as long as V–X combined; scape short, when laid straight back reaching mid-length of head in full-face view; antennal segment II almost as long as broad; III–V broader than long. Frontal carinae well developed, parallel in anterior 2/3, fused to form a single carina in posterior 1/3, extending less than half length of head. Parafrontal ridge prominently produced anteriorly in dorsal view. Ventrolateral margin of head in profile view weakly concave. Clypeus short, its anterior margin concave. Compound eye present, located anterior to mid-length of head, circular with 10–11 ommatidia along the longest axis. Ocelli

present, distance between median ocellus and lateral ocelli as long as distance between lateral ocelli. Mandible triangular, its masticatory margin with a series of inconspicuous small denticles. Mesosoma rather robust, in profile view its dorsal outline weakly convex; promesonotal suture distinct; metanotal groove indistinct; mesopleuron clearly demarcated from lateral face of pronotum. Propodeal declivity concave, margined with conspicuous lateral ridges, each of which armed with two inconspicuous denticles. Petiole in profile view higher than long when including subpetiolar process; dorsal margin weakly convex; in dorsal view, petiole in dorsal view subrectangular, almost as long as broad, lateral margin slightly convex. Subpetiolar process in profile subrectangular with conspicuous posteroventral projection. Postpetiole in profile view, subrectangular almost as long as high; dorsal margin weakly convex; in dorsal view subrectangular, almost as long as broad and slight broader than petiole. Postpetiolar sternite in profile view low, ventral margin weakly convex; anteroventrally produced as a blunt angle directed downward and forward. Abdominal tergite IV (= first gastral tergite) elongate-elliptical, in dorsal view, its anterior margin concave and lateral margin convex.

Sculpture. Dorsal and lateral faces of head deeply foveolate-reticulate; foveae relatively large; mandible punctate with a few foveae; antenna punctate. Pronotal flange partially punctate; dorsal and lateral faces of mesosoma foveolate; foveae somewhat shallower and more sparsely distributed than those of head; propodeal declivity smooth; legs punctate but shiny. Dorsal and lateral faces of petiolar tergite, and postpetiole coarsely and shallowly foveolate-reticulate. Abdominal tergite and sternite IV (= first gastral segment) densely foveolate; foveae somewhat smaller than those of head.

Pilosity. Body entirely covered with long decumbent and standing hairs.

REMARKS. Specimens collected from Thailand agree well with the two paratypes examined by us but are somewhat smaller than the latter in body size. The anterior portion of abdominal segment IV is slightly broader than in the paratypes.

DISTRIBUTION. Thailand (new record). – Vietnam (Yamada *et al.*, 2018).

HABITAT. In Thailand, this species was found nesting in rotten logs on the forest floor in a plantation and dry evergreen forest.

DESCRIPTION OF NEW SPECIES

Ooceraea siamensis Jaitrong, Yamane et Wiwatwitaya, sp. n.

<http://zoobank.org/NomenclaturalActs/667D9A7E-55F3-49BA-9EF6-B13A269E3DF4>

Figs 3, 4

TYPE MATERIAL. Holotype - worker (THNHM-I-02628, THNHM), **Thailand:** Trang Province, Palian District, Ban Nong Malai, near a house, 23.XII 2018, W. Jaitrong leg., colony no. WJT231218-8. Paratypes: twenty-four workers [SKYC (THNHM-I-19127 and THNHM-I-19128) and THNHM (THNHM-I-19105 to THNHM-I-19126)] and 2 dealate queens (THNHM, THNHM-I-02626 and THNHM-I-19104), same data as holotype.

MEASUREMENTS AND INDICES. Worker (holotype and paratypes, $n = 10$): HL 0.43–0.46, HW 0.33–0.38, SL 0.20–0.23, MW 0.23–0.30, ML 0.50–0.56, PL 0.18–0.21, PH 0.23–0.26, PW 0.20, PPL 0.23–0.25, PPH 0.23–0.26, PPW 0.23–0.26, CI 77–82, SI 60–61, PI1 75–81, PI2 92–109, PPI1 88–100, PPI2 100–107, WI 117–133. Dealate queen (paratypes, $n = 2$): HL 0.46–0.50, HW 0.38–0.40, SL 0.21–0.23, EL 0.08–0.10, MW 0.36–0.40, ML 0.66–0.69, PL 0.20–0.23, PH 0.28–0.30, PW 0.20, PPL 0.26, PPH 0.23–0.26, PPW 0.30, CI 80–82, SI 54–61, EI 22–25, PI1 67–82, PI2 86–100, PPI1 99, PPI2 100–106, WI 133–141.

DIAGNOSIS. Worker (Fig. 3). Body small (head width 0.33–0.38 mm), reddish brown (light brown in some paratypes); antenna 9-segmented; propodeal declivity shallowly concave and encircled with distinct rim; dorsal and lateral faces of head, mesosoma, petiole, postpetiole and abdominal tergite IV (= first gastral tergite) finely and shallowly foveolate; foveae on first gastral tergite smaller than those of head and mesosoma; propodeal declivity smooth and shiny. Dealate queen (Fig. 4). Similar to worker in structure, sculpture, coloration and pilosity, but the body size is slightly larger; eye and ocelli are present.

DESCRIPTION. WORKER (Fig. 3). *Size and color.* Relatively small (HW 0.33–0.38 mm; ML 0.50–0.56 mm). Body reddish brown; mandible dark brown; legs and antenna yellowish brown.

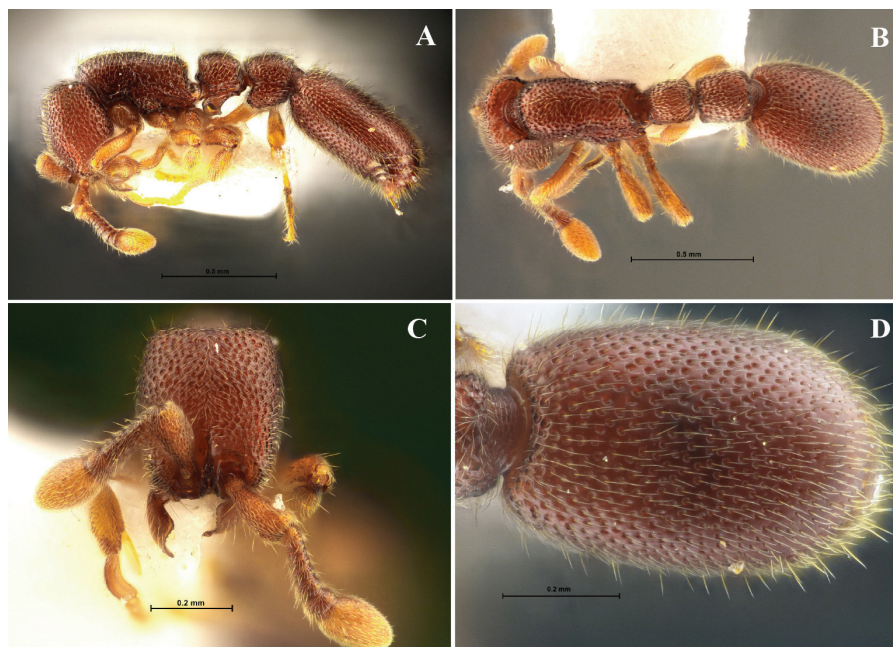


Fig. 3. *Ooceraea siamensis* **sp. n.**, holotype worker (THNHM-I-02628). A – body, lateral view; B – body, dorsal view; C – head in full-face view; D – postpetiole and abdominal tergite IV, dorsal view.

Structure. Head in full-face view clearly longer than broad; lateral margin weakly convex; posterior margin concave. Antenna 9-segmented with enlarged apical segment (IX) which is almost as long as III–VIII combined; scape short, when laid straight back not reaching mid-length of head in full-face view; antennal segment II almost as long as broad; III–V broader than long. Frontal carinae short, narrow and extending less than half length of head, sharply elevated in anterior half, and low and vestigial in posterior half. Parafrontal ridge short, seen in profile its dorsal outline weakly convex anteriorly. Clypeus short with its anterior margin concave. Compound eye and ocelli completely absent. Mandible triangular, its masticatory margin with a series of inconspicuous small denticles. Mesosoma rather robust, seen from above broader anteriorly, almost parallel-sided in posterior half; in profile view, promesonotum weakly convex dorsally and sloping gradually to metanotal groove; promesonotal suture absent; mesopleuron not clearly demarcated from metapleuron; mesopleuron clearly demarcated from lateral face of promesonotum by deep groove. Propodeal declivity deeply concave, encircled with a distinct rim except ventrally. Petiole in dorsal view almost as long as broad, almost parallel-sided; in profile, petiole including subpetiolar process higher than long, its node subrectangular and weakly convex dorsally; subpetiolar process in profile rounded-lobate with conspicuous posteroventral projection. Postpetiole in dorsal view subrectangular, slightly longer than broad and slight broader than petiole; in profile view, postpetiole almost as long as high, its dorsal outline weakly convex; postpetiolar sternite in profile view low, ventral margin weakly convex; anteroventrally produced as a blunt angle directed downward and forward. Abdominal tergite IV (= first gastral tergite) elongate-subrectangular (Fig. 3D), in dorsal view, its anterior margin concave and lateral margins weakly convex or almost parallel-sided.

Sculpture. Dorsal and lateral faces of head, mesosoma, petiole, postpetiole and first gastral tergite shallowly and finely foveolate; foveae on first gastral tergite smaller than those of head and mesosoma. Antennal scape and legs micropunctate. Outer face of mandible punctate, with smooth interspaces.

Pilosity. Body entirely covered with short decumbent and standing hairs.

DEALATE QUEEN (Fig. 4). Similar to the worker in structure, sculpture, coloration and pilosity, with the following conditions that should be noted: body slightly larger (HW 0.38–0.40 in dealate queen; 0.33–0.38 mm in worker); head in full-face view longer than broad; lateral margins weakly convex; posterior margin weakly concave; eye present, with 5–6 ommatidia along the longest axis, located anterior to mid-length of head (absent in worker); ocelli present (absent in worker), median ocellus smaller than lateral ocelli, distance between median ocellus and lateral ocelli shorter than distance between lateral ocelli; mesosoma stout, in profile view its dorsal outline weakly convex; promesonotal suture and metanotal groove distinct; in dorsal view, pronotum almost as long as mesoscutum; mesoscutum trapezoidal, almost as long as broad, anterior edge strongly convex while posterior edge straight; scutellum small, almost as long as broad; metanotum very short; propodeum with straight dorsal outline, slightly longer than scutellum; propodeal junction nearly right-angled, its declivity concave, encircled with a distinct rim except ventrally.

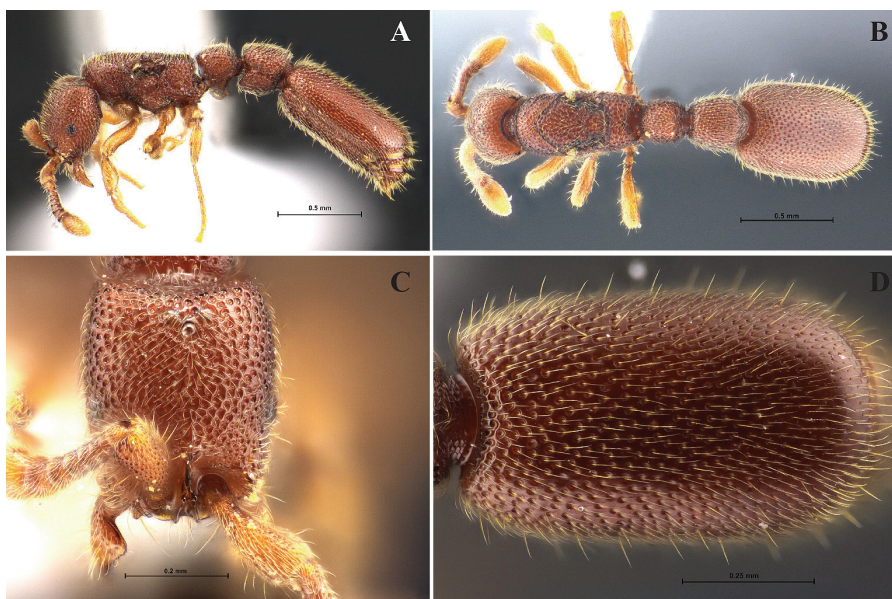


Fig. 4. *Ooceraea siamensis* **sp. n.**, paratype queen (THNHM-I-02626). A – body, lateral view; B – body, dorsal view; C – head in full-face view; D – postpetiole and abdominal tergite IV, dorsal view.

REMARKS. *Ooceraea siamensis* is most similar to *O. biroi* (see specimen codes CASENT0916710 and CASENT0907059 on AntWeb, 2021) in having a slender body and 9-segmented antenna. However, *O. siamensis* can be distinguished from *O. biroi* by the following characteristics: 1) postpetiole slightly longer than broad in dorsal view (clearly shorter than broad in *O. biroi*); 2) foveae on first gastral tergite and sternite denser and coarser (weak in *O. biroi*); 3) smaller body size (HW 0.33–0.38 in *O. siamensis*; 0.46–0.49 mm in *O. biroi*).

DISTRIBUTION. Thailand (Trang Province).

HABITAT. The single colony was collected from a fruit orchard near a house, nesting in soil.

ETYMOLOGY. The specific name is an adjective meaning ‘of Siam’ (a historic name of Thailand).

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REFERENCES

- AntWeb. 2021. *Genus: Ooceraea* Roger, 1862. Available from: <https://www.antweb.org/images.do?subfamily=dorylinae&genus=ooceraea&rank=genus&project=allantwebants> (Accessed: 2 July 2021).
- Bharti, H., Rilta, J.S. & Dhadwal, T. 2021. Two new species of *Ooceraea* (Hymenoptera, Formicidae, Dorylinae) from India with ten-segmented antennae. *ZooKeys* 1010: 165–183. DOI: <https://doi.org/10.3897/zookeys.1010.58436>
- Borowiec, M.L. 2016. Generic revision of the ant subfamily Dorylinae (Hymenoptera, Formicidae). *ZooKeys*. 608: 1–280. DOI: <https://doi.org/10.3897/zookeys.608.9427>
- Yamada, A., Luong, P.T.H. & Eguchi, K. 2018. Discription of a new species of the ant genus *Ooceraea* Roger, 1862 (Hymenoptera: Formicidae: Dorylinae) from the Vietnam's central highlands. *Journal of Insect Biodiversity*, 7: 17–23. DOI: <https://doi.org/10.12976/JIB/2018.07.1.2>